

TRANSIENT NONCOMMUNITY WATER SYSTEM GROUND WATER SOURCE ASSESSMENT FORMS

Modified 10/03/00

Drinking water systems and communities that choose to perform their own source water assessments as part of a drinking water source assessment and protection program should contact their regional DHS drinking water office to make sure they are using the up-to-date version of the forms and checklists contained in the Appendices.

APPENDICES TO BE USED FOR A TRANSIENT NONCOMMUNITY WATER SYSTEM GROUND WATER SOURCE

Appendix H — Drinking Water Source Location – Ground Water (*also available on the DHS website*)

Appendix I — Delineation of Ground Water Protection Zones

Appendix J — Physical Barrier Effectiveness Checklist – Ground Water Source and Well Data Sheet (Transient Water System) (*also available as a separate MS-Excel document*)

Appendix K— Possible Contaminating Activity (PCA) Inventory Form (Transient Water System)– Ground Water Source

Appendix M — Vulnerability Analysis Procedures – Ground Water Source

Appendix N — Checklist for Drinking Water Source Assessment – Ground Water Source

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Appendix H Drinking Water Source Location

(This form is available on the DHS website

http://www.dhs.ca.gov/ps/ddwem/technical/dwp/source_info/source_index.htm)

Public Water System Name: _____ System No.: _____
7-digit integer

Name of source: _____ Source No.: _____
3-digit integer

or PS Code: _____
15 characters

State Well Number (if applicable): _____

Date: _____ Name of person completing form: _____

LOCATION OF SOURCE: (decimal degrees)

Latitude: _____ Longitude: _____
10-digit signed decimal (2.6) sample: 41.209483
11-digit signed decimal (2.6) sample: -121.573421

Horizontal Datum: () NAD27 (preferred)
 () NAD83
 () WGS84
 () Other: _____
7 characters

 () Unknown

DESCRIPTION:

(e.g., plant entrance, well, intake, center of facility, etc. *Limit 50 characters.*):

METHOD OF DETERMINING LOCATION:

(If your method is not listed choose "other" and describe on next page)

☐ USGS quadrangle (topographic map)

Coordinates were determined: () Digitally (computer assisted)
 () Manually

Scale: () 1:24,000 (7.5 minute series)
 () 1:62,500 (15 minute series)
 () 1:100,000 (1 x 1/2 degree series)
 () Other: _____

Year of map publication: _____

Year of map photorevision: _____

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☐ **Global Positioning System (GPS)**

Unit (manufacturer/model): _____

Grade of GPS unit: () Recreational (e.g., Garmin)
 () Mapping (e.g., Trimble Geo Explorer)
 () Survey (e.g., CORS, carrier-phase)

Differential correction: () Yes
 () No

☐ **Other Method** () Cadastral survey
 () Parcel map
 () Address matching
 () PLSS System
 () Other: _____
 () Unknown

Accuracy, if known: +/- _____ meters

Scale of data source, if known: 1: _____

Appendix I**Transient Noncommunity Water System
Delineation of Ground Water Protection Zone**

Public water system: _____ ID No.: _____

Name of source: _____ ID No.: _____

Delineation date: _____ Delineation conducted by _____

Indicate the method used to delineate the zones:

_____ Arbitrary Fixed Radius

_____ Porous media aquifer = 600 feet

_____ Fractured rock aquifer = 900 feet

Other methods not typically used for transient noncommunity water systems:
(If these methods are used contact DHS for appropriate reporting forms)

_____ Calculated Fixed Radius

_____ Modified Calculated Fixed Radius

_____ More detailed methods

Type used (i.e., analytical methods, hydrogeologic mapping, modeling):

Appendix J

**Transient Noncommunity Water System
Physical Barrier Effectiveness Checklist and Well Data Sheet
- Ground Water Source**

Public water system: _____ ID No.: _____

Name of source: _____ ID No.: _____

Assessment date: _____ Assessment conducted by _____

Complete DHS Well Data Sheet (attached) and include with Assessment Report

DIRECTIONS:

1. Read through the form and collect the information needed to complete the form. (Hydrogeology, Soils, Presence of abandoned or improperly destroyed wells, Well construction and operation.)
2. For each parameter appropriate for the source, place a check in the box for the answer that most closely applies to that source. If more than one answer is possible, select the more conservative (i.e. lower points) answer. *[For example, if the depth to static water (Parameter D) has varied between 45 and 55 feet, choose answer 2 (20 to 50 feet).]*
4. Add the points in the column appropriate for the source and interpret the score as shown below.
 - Determine whether the source has a High, Moderate or Low Physical Barrier Effectiveness. For transient systems, the highest points that can be received is 55, or a Moderate PBE score. Use this in the Vulnerability analysis. The higher the points, generally the more effective the source and site are to retarding the movement of contaminants to the water supply.

NOTES:

1. To simplify assessments, transient noncommunity water system sources are assumed to be in unconfined aquifers.
2. If the source is located in fractured rock the source is considered to have a Low Physical Barrier Effectiveness, regardless of the point total. So, if Parameter A, Aquifer Material is Fractured Rock, the remainder of the form does not need to be completed.

Physical Barrier Effectiveness SCORE INTERPRETATION

<u>Point Total</u>		<u>Effectiveness</u>	
<u> </u> 0 to 35	=	Low	(includes all sources in Fractured Rock)
<u> </u> 36 to 69	=	Moderate	
<u> </u> 70 to 100	=	High	

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Transient Noncommunity Water System Physical Barrier Effectiveness (PBE) – Ground Water
 Source Name: _____ Source No.: _____

PARAMETER	POINTS
A. AQUIFER MATERIAL	
Type of materials within the aquifer (up to 10 points maximum) choose one	
Porous Media (Interbedded sands, silts, clays, and gravels)	10
Fractured rock *	0
(* Low Physical Barrier Effectiveness - no further questions required)	
B. PATHWAYS OF CONTAMINATION	
Presence of Abandoned or Improperly Destroyed Well	
Are they present within the protection zone? (up to 5 points maximum)	
Yes or unknown	0
No	5
C. STATIC WATER CONDITIONS	
Depth to static Water (DTW) = _____ feet	
(up to 10 points maximum) choose one	
Unknown, or 0 to 20 feet	0
20 to 50 feet	2
50 to 100 feet	6
> 100 feet	10
D. WELL OPERATION	
If the following information is Unknown, check here and go on to E:	0
Depth to Uppermost Perforations (DUP) DUP = _____ feet	
Maximum Pumping Rate of Well (Q) Q = _____ gallons/minute	
Length of screened interval (H) H = _____ feet	
$[(DUP - DTW) / (Q/H)] =$	
(up to 10 points maximum) choose one	
Unknown or < 5	0
5 to 10	5
> 10	10
E. WELL CONSTRUCTION	
Sanitary Seal (Annular Seal) Depth = _____ feet (up to 10 points maximum) choose one	
None, Unknown or less than 20 feet deep	0
20 to 50 ft deep	6
50 ft or greater	10
Surface seal (concrete cap) (up to 4 points maximum) choose one	
Not present or improperly constructed	0
Watertight, slopes away from well, at least 2' laterally in all directions	4
Flooding potential at well site (up to 1 point maximum) choose one	
Subject to localized flooding (i.e. in low area or unsealed pit or vault) or Within 100 year flood plain	0
Not subject to flooding	1
Security at well site (up to 5 points maximum) choose one	
Not secure	0
Secure (i.e. housing, fencing, etc.)	5
Maximum Points Possible	55

POINT TOTAL: _____ **SCORE:** _____ (Low, Moderate, High)

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WELL DATA SHEET (Page 1 OF 2) TRANSIENT WATER SYSTEM

(this form is available as an MS-Excel document)

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

* Indicates items required for Source Water Assessment

** Indicates additional items required for assessments and Ground Water Rule

	(separate multiple entries in field with semi-colon)	Actual, Estimated or Default?
DATA SHEET GENERAL INFORMATION		
System Name		from DHS database
System Number		from DHS database
Source of Information (well log, DHS/County files, system, etc)		
Organization Collecting Information (DHS, County, System, other)		
Date Information Collected/Updated		
WELL IDENTIFICATION		
* Well Number or Name		from DHS database
* DHS Source Identification Number (FRDS ID No.)		
DWR Well Log on File? ("YES" or "NO")		
State Well Number (from DWR)		
Well Status (Active, Standby, Inactive)		from DHS database
WELL LOCATION		
Street Address		
Nearest Cross Street		
City		
County		
* Neighborhood/Surrounding Area (see Note 1)		
Site plan on file? ("YES" or "NO")		
SANITARY CONDITIONS		
** Distance to closest Sewer Line, Sewage Disposal, Septic Tank (ft)		
** Size of controlled area around well (square feet)		
* Type of access control to well site (fencing, building, etc)		
* Surface Seal? (Concrete slab)("YES", "NO" or "UNKNOWN")		
* Dimensions of concrete slab: Length(ft)/ Width(ft)/ Thick(in)		
* Within 100 year flood plain? ("YES", "NO" or "UNKNOWN")		
* Drainage away from well? ("YES" or "NO")		
ENCLOSURE/HOUSING		
Enclosure Type (building, vault, none, etc.)		
Floor material		
WELL CONSTRUCTION		
Date drilled		
Drilling Method		
Depth of Bore Hole (feet below ground surface)		
* Depth to highest perforations/screens (ft below surface) (or "UNKNOWN")		
* Total length of screened interval (ft) (default = 10% pump capacity in gpm) (or "UNKNOWN")		
* Annular Seal?("YES", "NO" or "UNKNOWN") (See Note 3)		
* Depth of Annular Seal (ft)		
Material of Annular Seal (cement grout, bentonite, etc.)		

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WELL DATA SHEET (Page 2 OF 2) TRANSIENT WATER SYSTEM

AQUIFER	<i>(separate multiple entries in field with semi-colon)</i>	Actual, Estimated or Default?
* Aquifer Materials <i>(list all that apply: sand, silt, clay, gravel, rock, fractured rock)</i>		
* Effective porosity (decimal percent) <i>(default = 0.2)</i> (or "UNKNOWN")		
* Confining layer (Impervious Strata) above aquifer? ("YES", "NO" or "UNKNOWN")		
* Static water level (ft below ground surface)		
WELL PRODUCTION		
Is the well metered? ("YES" or "NO")		
Production (gallons per year)		
Frequency of Use (hours/year)		
Typical pumping duration (hours/day)		
PUMP		
Make		
Type		
Size (hp)		
* Capacity (gpm)		
Lubrication Type		

REMARKS AND DEFECTS (use additional sheets as necessary)

NOTES

1. Neighborhood/Surrounding Area (list all that apply): A= Agricultural, Ru = Rural, Re = Residential, Co = Commercial, I = Industrial, Mu = Municipal, P = Pristine, O = Other
2. Conductor Casing - Oversized casing used to stabilize bore hole during well construction. Should be removed during installation of annular seal.
3. Annular Seal - Seal of grout in the space between the well casing and the wall of the drilled hole. Sometimes called "sanitary seal".

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Appendix K

**Transient Noncommunity System
Possible Contaminating Activity (PCA) Inventory Form
Ground Water Source**

Public water system name: _____ ID No. _____

Name of drinking water source: _____ ID No. _____

Inventory date: _____ Inventory conducted by: _____

Attach map of Drinking Water Source with Protection Zone indicated.

Proceed to appropriate checklist or checklists. Place a Y, N or U in the appropriate boxes (Y = Yes, N = No, U = Unknown).

Example:

Y
N
U

Risk Ranking of PCAs, where VH = Very High Risk, H = High Risk, M = Moderate Risk, L = Low Risk

Notes:

1. Concentrated Animal Feeding Operation: Animal Feeding Operation (requires NPDES permit) with greater than:

If pollutants discharged (directly or indirectly) to navigable waters	If pollutants not discharged
300 slaughter or feeder cattle	1,000 slaughter or feeder cattle
200 mature dairy cows	700 mature dairy cows
750 swine	2500 swine
150 horses	500 horses
3000 sheep or lambs	10,000 sheep or lambs
16,500 turkeys	55,000 turkeys
9,000 laying hens or broilers (liquid manure system)	30,000 laying hens or broilers (liquid manure system)
1500 ducks	5000 ducks
300 animal units	1000 animal units

2. Animal Feeding Operation: lot or facility where animals (other than aquatic) have been or will be stabled or confined and fed or maintained for total of 45 days or more in any 12 month period.

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Transient Noncommunity Water System PCA Inventory – Ground Water Source

PCA (Risk Ranking)	PCA in Zone? (Yes, No, Unknown)	Comments
Gas stations (VH)		
Chemical/petroleum processing/storage (VH)		
Dry cleaners (VH)		
Metal plating/ finishing/fabricating (VH)		
Plastics/synthetics producers (VH)		
Sewer collection systems (H, if in Zone A, otherwise L)		
Airports - Maintenance/ fueling areas (VH)		
Landfills/dumps (VH)		
Septic systems - high density (>1/acre) (VH if in Zone A, otherwise M)		
Wastewater treatment plants (VH in Zone A, otherwise H)		
Septic systems – low density (<1/acre) (H in Zone A, otherwise L)		
Lagoons / liquid wastes (H)		
Agricultural Drainage (H in Zone A, otherwise M)		
Fertilizer, Pesticide/ Herbicide Application (M)		
Sewage sludge/biosolids application (M)		
Underground Injection of Commercial/Industrial Discharges (VH)		
Historic gas stations (VH)		
Historic waste dumps/ landfills (VH)		
Injection wells/ dry wells/ sumps (VH)		
Known Contaminant Plumes (VH)		
Military installations (VH)		
Mining operations - Historic (VH)		
Mining operations – Active (VH)		
Confirmed leaking Underground storage tanks (VH)		
Grazing (> 5 large animals or equivalent per acre) (H in Zone A, otherwise M)		
Concentrated Animal Feeding Operations (CAFOs) (see Note 1) (VH in Zone A, otherwise H)		
Animal Feeding Operations (See Note 2) (VH in Zone A, otherwise H)		
Other Animal operations (H in Zone A, otherwise M)		

Appendix M

Transient Noncommunity Water System Vulnerability Analysis Procedures – Ground Water Source

The Vulnerability analysis incorporates the types of Possible Contaminating Activities (PCAs) identified in the inventory, their respective Risk Rankings, the Zone and the Physical Barrier Effectiveness determination. These factors are used to develop a prioritized listing of types of PCAs and to determine the types of PCAs to which the drinking water source is most vulnerable.

Public water system: _____ ID No.: _____

Name of source: _____ ID No.: _____

Assessment date: _____ Assessment conducted by _____

Vulnerability analysis steps:

1. For each type of PCA identified as existing in the protection zones, or as unknown, determine the number of PCA risk ranking points for that type of PCA. (If the risk ranking for a type of PCA has been modified, Appendix E should be attached). *(For example, Very High (VH) risk activities are 7 points.)*
2. For each type of PCA add the zone points to the PCA risk ranking points. *(For example, if a type of PCA exists in the Zone add 5 points. For a VH risk PCA, the PCA Risk Ranking points + Zone points = 7 + 5 = 12 points.)*
3. Determine the Physical Barrier Effectiveness (PBE) for the drinking water source (from Appendix J). Add the points associated with that PBE to the PCA risk ranking and zone points. The total is the Vulnerability Score. *(For example, if the PBE is Low add 5 points. For a VH risk PCA, the Vulnerability Score = PCA Risk Ranking points + Zone points + PBE points = 7 + 5 + 5 = 17 points.)*
4. Prioritize all types of PCAs by the Vulnerability Score, from the most points to the least. A sample form is shown below.
5. The drinking water source is vulnerable to all types of PCAs with a Vulnerability Score of **8** or greater. Refer to the Vulnerability Matrix below. The source is most vulnerable to the types of PCAs with the highest score.
6. **In addition, the Drinking Water Source is most vulnerable to all types of PCAs associated with a contaminant detected in the water source, regardless of Vulnerability Score.**

The cutoff point for vulnerability is **8**. The drinking water source is considered Vulnerable to all PCAs with Vulnerability Score greater than or equal to **8** (shaded boxes).

* Source is considered vulnerable to PCAs that are Unknown, if the Vulnerability Score is 8 or higher.

List types of PCAs in order by Vulnerability Score from highest to lowest.

[illegible]

Appendix N

Checklist for Drinking Water Source Assessment – Ground Water Source

Public water system: _____ ID No.: _____

Name of source: _____ ID No.: _____

Assessment date: _____ Assessment conducted by _____

The following information should be contained in the drinking water source assessment submittal.

If another report that is the functional equivalent to the drinking water assessment (e.g., parts of a Ground Water Management Plan) is included in this assessment, the part of that report that fulfills the components of the source water assessment should be clearly indicated.

_____ Source name, system name, source and system identification numbers, date of assessment, name of person and/or organization conducting the assessment (Appendix N, this form)

_____ Assessment map with source location, source area (if known), and protection zones.

_____ Drinking water source location coordinates and accuracy of method used (Appendix H or equivalent)

_____ Delineation of protection zones (Appendix I or equivalent)

_____ Drinking water Physical Barrier Effectiveness Checklist (Appendix J)

_____ Well Data Sheet

_____ Possible contaminating activities (PCA) inventory form (Appendix K).

_____ Vulnerability ranking (Appendix M)

_____ Additional maps (optional) (e.g. local maps of zones and PCAs, recharge area maps, or maps indicating direction of ground water flow)

_____ Means of Public Availability of Report (indicate those that will be used)

_____ Notice in the annual consumer confidence report* (minimum)

_____ Copy in DHS district office (minimum)

_____ Copy in public water system office (recommended)

_____ Copy in public library/libraries

_____ Internet (indicate Internet address: _____)

_____ Other (describe)

*The annual report should indicate where customers can review the assessments.